

NewsRelease



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NASA Langley looks for ice clouds in tropics

Why go to the tip of the Sunshine State in July if you are looking for ice?

Because high in the atmosphere above the Florida Everglades and elsewhere in the tropics, cirrus clouds composed of ice crystals are significantly impacting our weather and climate.

Nearly 400 scientists from Langley, six other NASA centers, several government agencies, and universities are working in southern Florida this July to better understand tropical cirrus clouds. Called CRYSTAL-FACE (Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment,) researchers are using instruments on six research aircraft and three ground stations to measure cirrus cloud properties during the field campaign

"A better understanding of clouds will help in understanding and forecasting climate," said Vic Delnore, a research scientist in Langley's Atmospheric Sciences Competency and the CRYSTAL-FACE ground project manager.

The energy exchanged in the tropics between cirrus clouds, the sun, atmosphere and Earth is an important but not completely explained part of the tropical heat engine that drives the planet's weather and climate.

Scientists will use data collected during the month-long experiment to improve computer models that predict how climate will change in the future.

Delnore manages the operations of two ground stations on Florida's west coast peninsula and one on the east coast. Each station has numerous instruments that scan cirrus clouds five to 11 miles above the Earth's surface while airplanes fly over, under, around and through them.

Bill Smith, the chief scientist from Langley's Atmospheric Sciences, is the lead scientist on the Proteus aircraft and principal investigator for one of its instruments.

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"The Proteus payload samples the radiation from the Earth and atmosphere over a broad spectral range," said Smith. "This collection of measurements is the most comprehensive survey of the atmosphere ever conducted from an airborne or spaceborne platform."

Pat Minnis, a senior atmospheric scientist from Langley, is the principal investigator of the satellite retrievals team. The group gives forecasters and mission planners critical information, such as the location of developing storms and their intensity, for designing flight plans prior to and during each mission.

"In addition, the team's analyses of cloud properties will provide data crucial for understanding how long the storm-generated cirrus clouds exist as well as how the cloud particle sizes, shapes and numbers change during the cirrus cloud's existence," said Minnis. "That information will be used to help modelers accurately characterize cirrus clouds in weather and climate forecast models."

Measurements taken during CRYSTAL-FACE will also provide the first opportunity for scientists to validate observations from the Aqua satellite, which includes in its payload Langley's Clouds and the Earth's Radiant Energy System (CERES) instruments.

Over 20 researchers and support personnel from Langley are participating in CRYSTAL-FACE on different instrument, modeling and support teams.

For more information, visit the CRYSTAL-FACE Home Page:
<http://cloud1.arc.nasa.gov/crystallface>

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